Claims

1. Post-translationally processed hedgehog protein mutant which is obtainable by expressing a gene which codes for a hedgehog protein in a baculovirus expression system in a fermentation for a period of up to 30 hours, purifying the cell supernatant in the presence of a protease inhibitor and a non-ionic detergent and isolating the hh mutant which binds to heparin-Sepharose and hydroxylapatite and is characterized in that this hh mutant

   — exhibits a molecular weight of 22 ± 1 kDa under alkylating conditions,
   — exhibits a molecular weight of 24 ± 1 kD under reducing conditions,
   — is stabilized with respect to its activity by suramin
   — is inactivated when 8 or more amino acids are cleaved N-terminally
   — is inactivated by 90 % or more when incubated with 10 mmol/l DTE for 2.5 hours at 37°C,
   — induces an activity for alkaline phosphatase of ca. 90 nmol pNP/min/mg at a concentration of 5 nmol/l in the presence of suramin,
   — is not modified by cholesterol.

2. Process for the production of a post-translationally processed hedgehog protein mutant by expressing a gene which codes for a hedgehog protein in a baculovirus expression system in a fermentation for a period of 24 to 27 hours, purifying the cell

supernatant in the presence of a protease inhibitor and a non-ionic detergent and isolating the hh mutant which binds to heparin-Sepharose and hydroxylapatite and is characterized in that this hh mutant

— exhibits a molecular weight of 22 ± 1 kDa under alkylating conditions,
— exhibits a molecular weight of 24 ± 1 kD under reducing conditions,
— is stabilized with respect to its activity by suramin
— is inactivated when 8 or more amino acids are cleaved N-terminally
— is inactivated by 90 % or more when incubated with 10 mmol/l DTE for 2.5 hours at 37°C,
— induces an activity for alkaline phosphatase of ca. 90 nmol pNP/min/mg at a concentration of 5 nmol/l in the presence of suramin,
— is not modified by cholesterol.

3. Process as claimed in claim 2, wherein, after chromatography on heparin-Sepharose, it is dialysed against lower ionic strengths.

4. Process as claimed in claim 3, wherein the dialysis is carried out in the presence of 10 - 100 mmol/l sodium chloride.

5. Pharmaceutical composition containing a hh mutant as claimed in claim 1.

6. Pharmaceutical composition as claimed in claim 5, containing suramin, a biocompatible matrix and/or a sequestering agent.

7. Process for the production of a pharmaceutical composition by combination of a hh mutant as claimed in claim 1 with a pharmaceutical auxiliary substance or with suramin.

8. Process for the production of a pharmaceutical composition by combination of a hh mutant as claimed in claim 1 with a biocompatible matrix and/or a sequestering agent.